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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,756	03/25/2004	Michael Vrazel	07982.105020 US	7339
20786	7590	04/28/2005	EXAMINER	
KING & SPALDING LLP 191 PEACHTREE STREET, N.E. 45TH FLOOR ATLANTA, GA 30303-1763			BAYARD, EMMANUEL	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/809,756

Applicant(s)

VRAZEL, MICHAEL

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/1/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Sivadas et al Pub NO 2003/0053354 A1.

As per claims 1, 7 and 17 Sivadas teaches a signal processing method comprising the steps of: receiving a signal having a level of distortion (see figs. 10-11 elements 210 and 332 and page 4, paragraph [0038]); a core equalizer is the same as the claimed (filtering) the signal according to a filter parameter to reduce the level of distortion (see figs.10-11 elements 202, 302 and page 4, paragraphs [0038], [0042]); comparing the filtered signal to a reference (see page 4, paragraphs [0038], [0042]); a slicer is the same as the claimed (generating a quantized signal) (see figs 10-11 elements 204, 304 and page 4, paragraphs [0038], [0042]), having at least two signal levels (see fig. 11 element 328), based on the comparison; detecting a first signal energy in a first frequency band of each of the filtered signal and the quantized signal (see fig.11 element 316 or 318); detecting a second energy signal in a second frequency band (see fig. 11 element 314, 320) in each of the filtered signal and the

quantized signal; adjusting the filter parameter based on the signal parameter of the filtered signal, the first signal energy of the quantized signal, and at least one of the detected second signal energies (see fig. 11 element 305 and page 5, paragraphs [0046], [0048]; and responsive to the adjusting step, further reducing the level of distortion (see figs.10-11 and page 5, paragraph [0048]).

As per claim 2, Sivadas inherently teaches wherein the first frequency band is above a frequency threshold and the second frequency band is below the frequency threshold.

As per claim 3, Sivadas inherently teaches the signal has a data rate; the first frequency band comprises frequencies greater than half of the data rate and the second frequency band comprises frequencies greater than half of the data rate.

As per claim 4, Sivadas inherently teaches the signal has a data rate; detecting the first signal energy comprises detecting the energy in a component in each of the filtered signal and the quantized signal, the component having a frequency less than the data rate and detecting the second signal energy comprises detecting the energy in a second component in each of the filtered signal and the quantized signal, the component having a frequency greater than one half of the data rate.

As per claim 5, Sivadas inherently teaches the steps of: scaling the first detected signal energy of the filtered signal based on the second detected energy in the quantized signal; scaling the first detected signal energy of the quantized signal based on the second detected energy of the filtered signal.

As per claim 6, Sivadas inherently teaches the steps of: scaling the first detected signal energy of the filtered signal based on the second detected energy in the quantized signal; scaling the first detected signal energy of the quantized signal based on the second detected energy of the filtered signal; and comparing the scaled first detected signal energy of the filtered signal to the scaled first detected signal energy of the quantized signal, wherein the adjusting step comprises adjusting the filter parameter based on the comparison.

As per claim 8, Sivadas inherently teaches monitoring the low-frequency energy comprises determining a difference between the monitored low-frequency energy in the equalized communication signal and the monitored low-frequency energy in the quantized communication signal; and the comparing step comprises comparing the monitored parameter in the equalized communication signal to the monitored parameter in the quantized communication signal and compensating the comparison according to the difference in the low-frequency energy.

As per claim 9, Sivadas inherently teaches monitoring the low-frequency energy comprises: monitoring the low-frequency energy in the equalized communication signal; and monitoring the low-frequency energy in the quantized communication signal; and the comparing step comprises: scaling the monitored parameter in the equalized communication signal based on the monitored low-frequency energy in the quantized communication signal; scaling the monitored parameter in the quantized communication signal based on the monitored low-frequency energy in the equalized communication

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signal; and comparing the scaled parameter of the equalized communication signal to the scaled parameter of the quantized communication signal.

As per claim 10, Sivadas inherently teaches the steps of: transmitting the communication signal through a medium; causing a distortion of the communication signal with the medium; and receiving the distorted communication signal from the medium, wherein the applying step comprises applying the degree of equalization to the received communication signal to correct the distortion.

As per claim 11, Sivadas inherently teaches wherein the parameter comprises edge energy.

As per claim 12, Sivadas inherently teaches detecting a power in a frequency component in each of the equalized communication signal and the quantized communication signal.

As per claim 13, Sivadas inherently teaches wherein monitoring the parameter comprises detecting a power in a high-frequency component in each of the equalized communication signal and the quantized communication signal, wherein the frequency of the high frequency component is greater than one half of the data rate.

As per claim 14, Sivadas teaches wherein quantizing the equalized communication signal comprises processing the equalized communication signal with a comparator (see col.3, lines 10-15).

As per claim 15, Sivadas teaches wherein applying the degree of equalization to the communication signal comprises filtering the communication signal (see element 100).

As per claim 16, Sivadas inherently teaches, wherein applying the degree of equalization to the communication signal comprises processing the communication signal with a Bode equalizer.

As per claim 17, Sivadas teaches signal processing circuit comprising: a core equalizer is the same as the claimed (filter) (see figs. 10-11 elements 202, 302) for filtering a communication signal; a comparator coupled to an output of the filter for comparing the communication signal to a reference reference (see page 4, paragraphs [0038], [0042]; and a control circuit (see figs. 10-11 elements 206, 305) coupled to the filter and the output of the filter and an output of the comparator, the control circuit adjusting the filter based on: a first signal (see fig.11 element 306) obtained at the filter output comprising components of the communication signal in a first frequency range; a second signal (see fig.11 element 312) obtained at the comparator outputs comprising components of the communication signal in a second frequency ranges; and a third signal (see fig.11 element 308) obtained at the filter outputs comprising components of the communication signal in a third frequency range; and a fourth signal (see fig.11 element 310) obtained at the comparator output, comprising components of the communication signal in a fourth frequency range wherein the third frequency range is below the first frequency range and the fourth frequency range is below the second frequency range.

As per claim 18, Sivadas inherently teaches, wherein the filter is operative to compensate for a distortion in the communication signal.

As per claim 19, Sivadas inherently teaches, wherein the filter comprises an

equalizing filters the first frequency range overlaps the second frequency range and the third frequency range overlaps the fourth frequency range.

As per claim 20, Sivadas inherently teaches, wherein the control circuit comprises: a first and a second high-pass filter, each passing electric signals with frequencies above a first frequency threshold and attenuating electric signals with frequencies below the first frequency threshold; and a first and a second low-pass filter, each passing electric signals with frequencies below a second frequency threshold and attenuating electric signals with frequencies above the second frequency threshold wherein the first high-pass filter passes the first signal, the second high-pass filter passes the second signals the first low-pass filter passes the third signal and the second low-pass filter passes the fourth signal.

As per claim 21, Sivadas inherently teaches, wherein the control circuit further comprises: a first detector for monitoring energy of the first signal: a second detector for monitoring energy of the second signal; a third detector for monitoring energy of the third signals; and a fourth detector for monitoring energy of the fourth signal wherein the filter comprises an equalizing filter and the control circuit adjusts the equalizing filter based on the monitored energies of each of the first, second third and fourth detectors.

As per claim 22, Sivadas inherently teaches, wherein the tilter comprises a Bode equalizer.

As per claim 23, Sivadas inherently teaches, wherein the control circuit is further operative to provide equalization to the communication signal by reducing a difference

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between edge energy of the communication signal at the tilter output and the edge energy of the communication signal at the comparator output.

As per claim 24, Sivadas inherently teaches wherein the comparator is further to operative to quantize the communication signal.

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Choi et al U.S. Patent No 6,819,166 B1 teaches a continuous time low frequency.

Farrow et al U.S. Patent No 6,295,325 B1 teaches a fixed clock based.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

4/26/05

Emmanuel Bayard  
Primary Examiner  
Art Unit 2631

  
**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**